



SEAL BORE ACCESSORIES

4.000”

Manual No:
DL-581-4000-440

Revision: **E**

Revision Date:
08/03/2023

Authored by: *B.Mathis*

Approved by: *B.Oligschlaeger*

A) DESCRIPTION

The D&L 4.000” Seal Bore Accessories are designed to work with D&L Permapak Packers with 4.000” seal bores.

B) PRE-INSTALLATION INSPECTION PROCEDURES

CAUTION: D&L ships tool connections made-up **HAND TIGHT**—labeled with hand-tight tape on the tool (Fig. 1)—unless stated otherwise. Tighten/torque all connections properly before operating tool.



Fig. 1

GENERAL THREAD CONNECTION TORQUE RECOMMENDATIONS			
STUB ACME / ACME THREADS	INTERNAL TAPERED TUBING THREADS		PREMIUM THREADS
	UP TO 2-3/8”	GREATER THAN 2-3/8”	
600 – 800 FT-LBS	600 – 800 FT-LBS	800 – 1,200 FT-LBS	Consult thread manufacturer’s recommendations.

Before first use, D&L recommends disassembly and inspection of the tool unless stated otherwise. Ensure parts have not been damaged during shipping. Replace damaged parts with D&L replacement parts. Contact D&L sales for replacement part information.

Re-assemble the tool after inspection. Install parts in the correct order and orientation. Properly tighten connections.

C) STORAGE RECOMMENDATIONS

When preparing the tool for storage, follow the Pre-Installation Inspection Procedures. Re-assemble the tool with connections hand-tight only and in running position if applicable.

Store the tool, if possible, in an enclosed, temperature and humidity controlled environment. Avoid excessively high temperatures over long periods of time. Shield elastomeric parts from ultraviolet light sources. Keep tool dry and protected from condensation. Do not store in contact with or near volatile or corrosive chemicals. Do not store near ozone generating equipment or operations such as welding.

D) ELASTOMER TRIM TEMPERATURE GUIDE

RUBBER TYPE	TEMPERATURE RANGE
NITRILE	40° - 250°F
HSN (HNBR)	70° - 300°F
VITON/VTR	100° - 350°F
ATR	100° - 400°F

E) RECOMMENDED HAND TOOLS

- VISE
- GLOVES
- ALLEN WRENCHES
- TAPE MEASURE
- O-RING PICK
- BAR
 - 1/2-INCH
 - 3/4-INCH
- PAINT BRUSH, 2-INCH
- PIPE WRENCH, 3-FT (2 EA)
- “CHEATER” PIPE, 4-FT LONG
- ADJUSTABLE WRENCH, 12-INCH
- CORDLESS DRILL, 18V
- SNAP RING SPREADER PLIERS
- ALIGNING PUNCH
- SCREWDRIVER SET, FLAT-TIPPED
- SOCKET SETS
 - 3/8-INCH DRIVE
 - 1/2-INCH DRIVE
- HAMMERS
 - SLEDGE
 - BALL PEEN
 - DEAD BLOW

D & L OIL TOOLS
 P.O. BOX 52220 TULSA, OK 74152
 PHONE: (800) 441-3504 www.dloiltools.com



SEAL BORE ACCESSORIES

4.000”

Manual No:
DL-581-4000-440

Revision: **E**

Revision Date:
08/03/2023

Authored by: B.Mathis

Approved by: B.Oligschlaeger

F) LOCATOR SEAL ASSEMBLY

The Locator Seal Assembly is used in installations which require floating seals. Once landed, the seal locator prevents downward movement of the tubing while allowing the seal to move with tubing contraction.

F-1) SPECIFICATION GUIDE

PACKER BORE SIZE (INCHES)	ASSEMBLY OD (INCHES)	ASSEMBLY BORE (INCHES)	THREAD CONNECTION BOX UP / PIN DOWN	PART NUMBER
4.000	5.06	3.00	3-1/2 EUE / 3.6250-8 STUB ACME	58340 58340H ¹ 58340V ² 58340ATR ³ 58340VTR ⁴
	4.625	3.00	3-1/2 EUE / 3.6250-8 STUB ACME	58340-3 58340H-3 ¹ 58340V-3 ² 58340ATR-3 ³ 58340VTR-3 ⁴

Elastomer Trim Options: ¹HNS, ²Viton, ³AFLAS, Teflon, Ryton Seal Stack, ⁴Viton, Teflon, Ryton Seal Stack

F-2) DISASSEMBLY

F-2.1) Clamp locator sub (1) in vise.

F-2.1.1) Remove bonded seals (2) and seal spacer (3) from locator sub (1).

F-2.1.1.1) Remove o-rings (4) from bonded seals (2).

F-2.2) Unclamp and remove locator sub (1) from vise.

F-3) ASSEMBLY

NOTE₂: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, and orientation.

F-3.1) Clamp locator sub (1) in vise.

F-3.1.1) Install o-rings (4) in o-ring grooves in bonded seals (2).

F-3.1.2) Install bonded seals (2) and seal spacer (3) onto locator sub (1).

CAUTION₁: Do not rip or tear o-rings during installation

F-3.2) Unclamp locator sub (1) from vise and remove assembled tool.

F-4) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58340	P/N 58340-3
1	1	LOCATOR SUB	DLMS80	58340610	58340610-3
2	2	BONDED SEAL	DLMS60 / 90 DURO NITRILE	58040520*	58040520*
3	1	SEAL SPACER	DLMS60	58040550*	58040550*
4	2	154 O-RING	90 DURO NITRILE	90154*	90154*

ASSEMBLED WEIGHT	26 LBS	24 LBS
------------------	--------	--------

*Not part of ATR and VTR assemblies. Refer to ATR and VTR Seal Stack Assembly (I.4).



SEAL BORE ACCESSORIES

4.000”

Manual No:
DL-581-4000-440

Revision: **E**

Revision Date:
08/03/2023

Authored by: *B.Mathis*

Approved by: *B.Oligschlaeger*

F) LOCATOR SEAL ASSEMBLY (cont'd)

F-5) ELASTOMER TRIM OPTIONS

NOTE₃: For temperature range, refer to Elastomer Trim Temperature Guide.

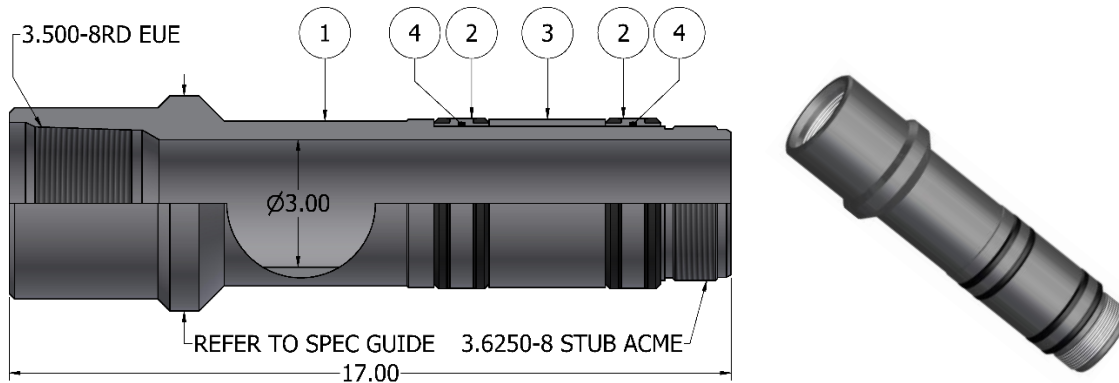
F-5.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58340H	P/N 58340H-3
2	2	BONDED SEAL	DLMS60 / 90 DURO HSN	58040520H	58040520H
4	2	154 O-RING	90 DURO HSN	90154H	90154H

F-5.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58340V	P/N 58340V-3
2	2	BONDED SEAL	DLMS60 / 90 DURO VITON	58040520V	58040520V
4	2	154 O-RING	90 DURO VITON	90154V	90154V

F-6) TECHNICAL ILLUSTRATION



G) ANCHOR LATCH ASSEMBLY

An Anchor (Snap) Latch is used to hold tubing in tension, or compression. The latch will automatically latch into the packer upon set down. To release from the packer put 1 to 2 points tension (1,000-2,000 lbs) on the tubing and rotate 8-10 turns to right at packer. The latch works with standard packer latch thread.

G-1) SPECIFICATION GUIDE

PACKER BORE SIZE (INCHES)	ASSEMBLY OD (INCHES)	ASSEMBLY BORE (INCHES)	TENSILE LOAD THRU TOOL (MAX)	THREAD CONNECTION BOX UP / PIN DOWN	PART NUMBER
4.000	5.060	3.000	103,000 LBS	3.500-8RD EUE / 3.6250 STUB ACME	58240 58240H ¹ 58240V ² 58240ATR ³ 58240VTR ⁴

Elastomer Trim Options: ¹HSN, ²Viton, ³AFLAS, Teflon, Ryton Seal Stack, ⁴Viton, Teflon, Ryton Seal Stack



SEAL BORE ACCESSORIES

4.000”

Manual No:
DL-581-4000-440

Revision: **E**

Revision Date:
08/03/2023

Authored by: B.Mathis

Approved by: B.Oligschlaeger

G) ANCHOR LATCH ASSEMBLY (cont'd)

G-2) DISASSEMBLY

G-2.1) Clamp top sub (1) in vise.

G-2.1.1) Remove bonded seals (4) and seal spacer (5) from anchor mandrel (2).

G-2.1.1.1) Remove o-rings (7) from bonded seals (2).

G-2.1.2) Unscrew and remove anchor mandrel (2) from top sub (1).

G-2.1.3) Remove anchor latch collet (3) from anchor mandrel (2).

G-2.2) Unclamp and remove top sub (1) from vise.

G-2.3) Remove o-ring (6) from top sub (1).

G-3) ASSEMBLY

NOTE1: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, and orientation and tighten/torque all connections properly.

G-3.1) Install o-ring (6) in o-ring groove in top sub (1).

G-3.2) Clamp top sub (1) in vise.

G-3.2.1) Install anchor latch collet (3) onto anchor mandrel (2).

G-3.2.2) Screw anchor mandrel (2) into top sub (1).

G-3.2.3) Install o-rings (7) in o-ring grooves in bonded seals (4).

G-3.2.4) Install bonded seals (4) and seal spacer (5) onto anchor mandrel (2).

CAUTION1: Do not rip or tear o-rings during installation

G-3.3) Unclamp and remove assembled anchor latch assembly from vise.

G-4) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58240
1	1	TOP SUB	L-80	58240610
2	1	ANCHOR MANDREL	L-80	58240210
3	1	ANCHOR LATCH COLLET	DLMS110	58240003
4	2	BONDED SEAL	DLMS60 / 90 DURO NITRILE	58040520*
5	1	SEAL SPACER	DLMS60	58040550*
6	1	341 O-RING	90 DURO NITRILE	90341*
7	2	154 O-RING	90 DURO NITRILE	90154*

*Not part of ATR and VTR assemblies. Refer to ATR and VTR Seal Stack Assembly (H.4).

ASSEMBLED WEIGHT	37 LBS
------------------	--------



SEAL BORE ACCESSORIES

4.000”

Manual No:
DL-581-4000-440

Revision: **E**

Revision Date:
08/03/2023

Authored by: *B.Mathis*

Approved by: *B.Oligschlaeger*

G) ANCHOR LATCH ASSEMBLY (cont'd)

G-4.1) ELASTOMER TRIM OPTIONS

NOTE3: For temperature range, refer to Elastomer Trim Temperature Guide.

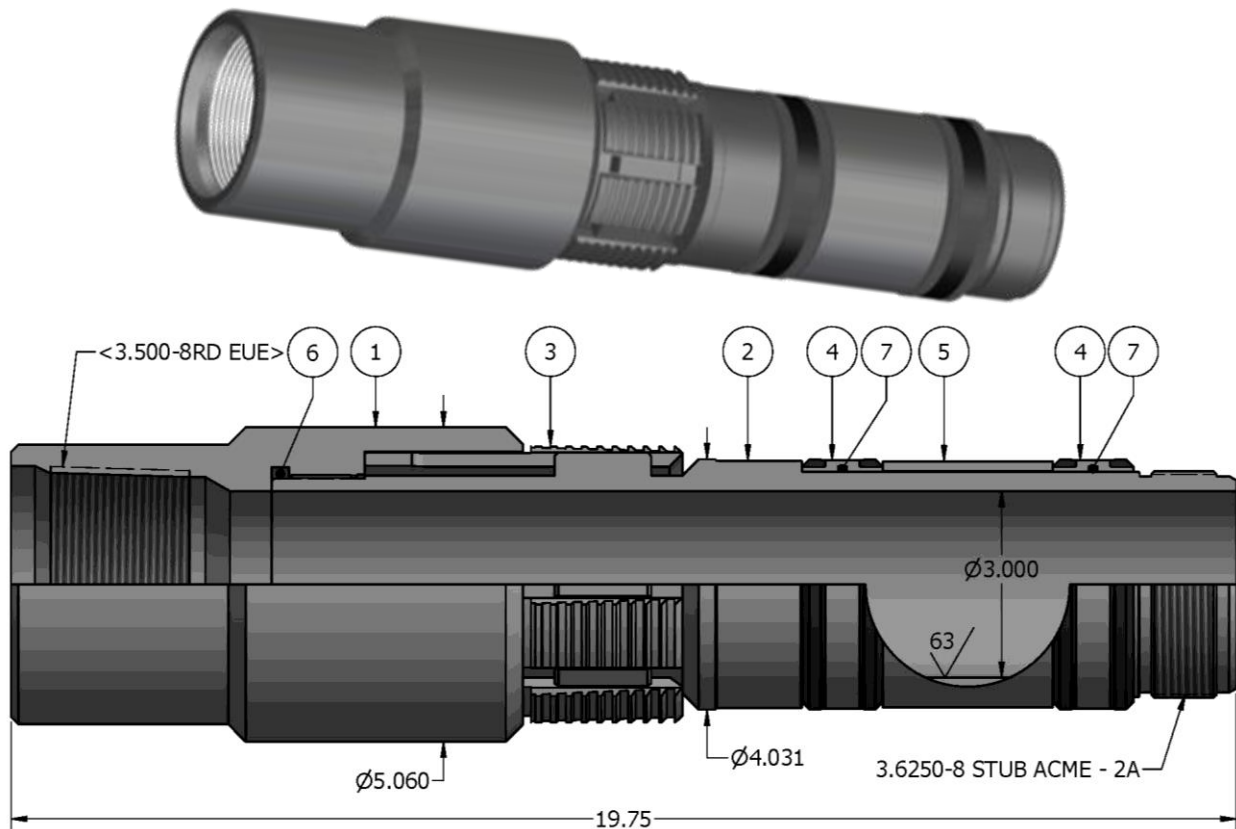
G-4.1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58240H
4	2	BONDED SEAL	90 DURO HSN	58040520H
6	1	341 O-RING	90 DURO HSN	90341H
7	2	154 O-RING	90 DURO HSN	90154H

G-4.1.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58240V
4	2	BONDED SEAL	90 DURO VITON	58040520
6	1	341 O-RING	90 DURO VITON	90341V
7	2	154 O-RING	90 DURO VITON	90154V

G-5) TECHNICAL ILLUSTRATION





SEAL BORE ACCESSORIES

4.000”

Manual No:
DL-581-4000-440

Revision: **E**

Revision Date:
08/03/2023

Authored by: *B.Mathis*

Approved by: *B.Oligschlaeger*

H) SNAP LATCH ASSEMBLY

The Snap Latch Seal Assembly latches into the packer upon set down (like our Anchor Latch Seal Assembly). It can be removed with straight pull of 2,000 to 4,000 lbs. above tubing weight. The Snap Latch Seal Assembly is used where a mechanical indication is required to verify the seal assembly is properly positioned in the packer bore.

H-1) SPECIFICATION GUIDE

PACKER BORE SIZE (INCHES)	ASSEMBLY OD (INCHES)	ASSEMBLY BORE (INCHES)	THREAD CONNECTION BOX UP / PIN DOWN	PART NUMBER
4.000	5.182	3.000	3-1/2” EUE / 6.6250 STUB ACME	57840 57840H ¹ 57840V ² 57840ATR ³ 57840VTR ⁴

Elastomer Trim Options: ¹HSN, ²Viton, ³AFLAS, Teflon, Ryton Seal Stack, ⁴Viton, Teflon, Ryton Seal Stack

H-2) DISASSEMBLY

H-2.1) Clamp top sub (1) in vise.

H-2.1.1) Remove bonded seals (4) and seal spacer (5) from seal mandrel (2).

H-2.1.1.1) Remove o-rings (7) from bonded seals (4).

H-2.1.2) Unscrew and remove seal mandrel (2) from top sub (1).

H-2.1.3) Unscrew and remove set screws (6) from top sub (1).

H-2.1.4) Unscrew and remove snap latch collet (3) from top sub (1).

H-2.2) Unclamp and remove top sub (1) from vise.

H-2.2.1) Remove o-ring (8) from top sub (1).

H-3) ASSEMBLY

NOTE: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, and orientation and tighten/torque all connections properly.

H-3.1) Install o-ring (8) in o-ring groove in top sub (1).

H-3.2) Clamp top sub (1) in vise.

H-3.2.1) Screw snap latch collet (3) into top sub (1).

H-3.2.2) Screw set screws (6) into top sub (1).

H-3.2.3) Screw seal mandrel (2) into top sub (1).

CAUTION: Do not rip or tear o-ring during installation

H-3.2.4) Install o-rings (7) in o-ring grooves in bonded seals (4).

H-3.2.5) Install bonded seals (4) and seal spacer (5) onto seal mandrel (2).

CAUTION: Do not rip or tear o-rings during installation

H-3.3) Unclamp top sub (1) from vise and remove assembled tool.



SEAL BORE ACCESSORIES

4.000”

Manual No:
DL-581-4000-440

Revision: **E**

Revision Date:
08/03/2023

Authored by: B.Mathis

Approved by: B.Oligschlaeger

H) SNAP LATCH ASSEMBLY (cont'd)

H-4) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 57840
1	1	TOP SUB	L-80	57840610
2	1	SEAL MANDREL	L-80	57840210
3	1	SNAP LATCH COLLET	P-110	57840003
4	2	BONDED SEAL	DLMS60 / 90 DURO NITRILE	58040520*
5	1	SEAL SPACER	DLMS60	58040550*
6	3	SET SCREW 1/4-20 UNC X 1/4	STEEL	SSS025C025
7	2	154 O-RING	90 DURO NITRILE	90154*
8	1	342 O-RING	90 DURO NITRILE	90342*

*Not part of ATR and VTR assemblies. Refer to ATR and VTR Seal Stack Assembly (H.4).

ASSEMBLED WEIGHT	43 LBS
------------------	--------

H-4.1) ELASTOMER TRIM OPTIONS

NOTE₃: For temperature range, refer to Elastomer Trim Temperature Guide.

H-4.1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 57840H
4	2	BONDED SEAL	90 DURO HSN	58040520H
7	2	154 O-RING	90 DURO HSN	90154H
8	1	342 O-RING	90 DURO HSN	90342H

H-4.1.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 57840V
4	2	BONDED SEAL	90 DURO VITON	58040520V
7	2	154 O-RING	90 DURO VITON	90154V
8	1	342 O-RING	90 DURO VITON	90342V



SEAL BORE ACCESSORIES

4.000"

Manual No:
DL-581-4000-440

Revision: E

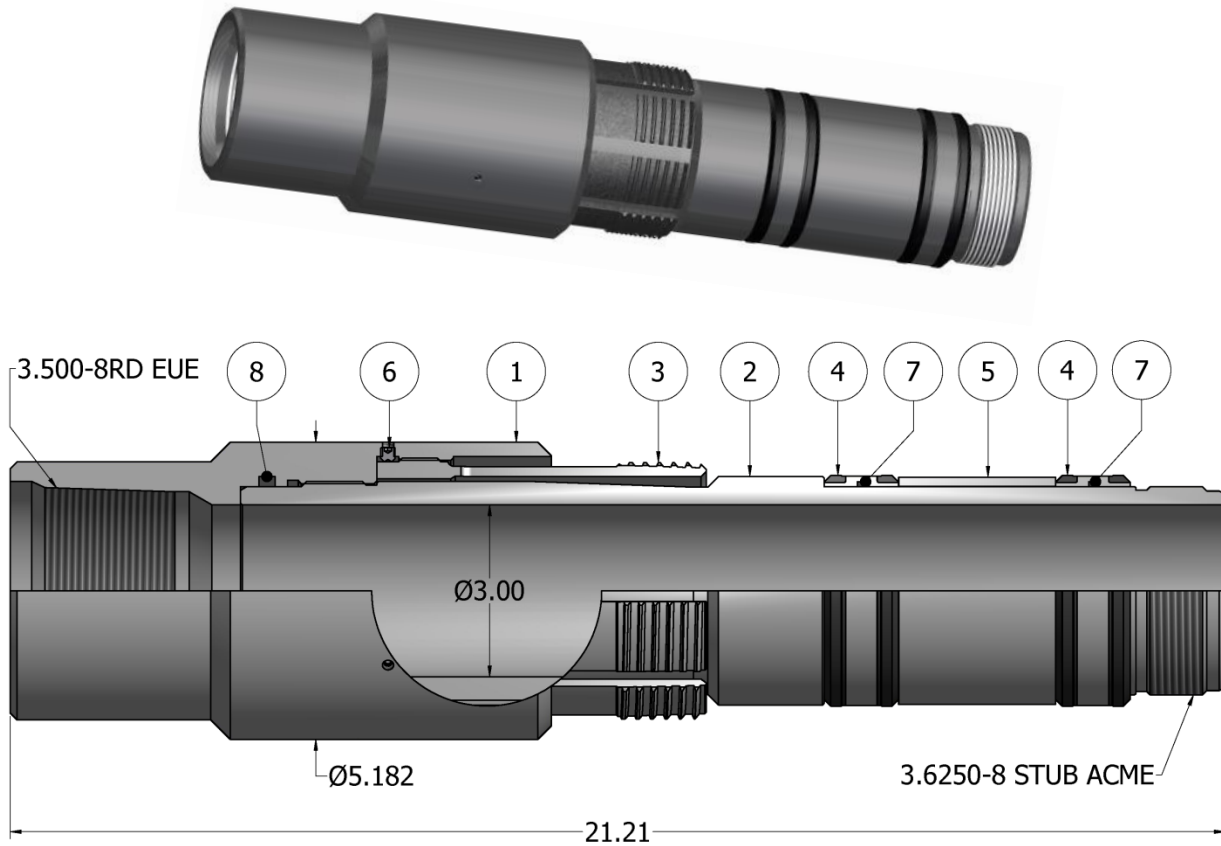
Revision Date:
08/03/2023

Authored by: B.Mathis

Approved by: B.Oligschlaeger

H) SNAP LATCH ASSEMBLY (cont'd)

H-5) TECHNICAL ILLUSTRATION





SEAL BORE ACCESSORIES

4.000”

Manual No:
DL-581-4000-440

Revision: **E**

Revision Date:
08/03/2023

Authored by: B.Mathis

Approved by: B.Oligschlaeger

I) SEAL UNIT ASSEMBLY

The D&L Seal Unit Assembly is used in conjunction with an Anchor Latch or Locator Assembly to increase the length of seals. The Seal Unit Assembly will be installed between the Anchor Latch or Locator Assembly and the Mule Shoe.

I-1) SPECIFICATION GUIDE

PACKER BORE SIZE (INCHES)	ASSEMBLY OD (INCHES)	ASSEMBLY BORE (INCHES)	THREAD CONNECTION BOX UP / PIN DOWN	PART NUMBER
4.000	3.960	3.000	3.6250-8 STUB ACME	58140 58140H ¹ 58140V ² 58140ATR ³ 58140VTR ⁴

Elastomer Trim Options: ¹HSN, ²Viton, ³AFLAS, Teflon, Ryton Seal Stack, ⁴Viton, Teflon, Ryton Seal Stack

I-2) DISASSEMBLY

I-2.1) Clamp seal mandrel (1) in vise.

I-2.1.1) Remove bonded seals (2) and seal spacer (3) from seal mandrel (1).

I-2.1.1.1) Remove o-rings (5) from bonded seals (2).

I-2.2) Remove seal mandrel (1) from vise.

I-2.3) Remove o-rings (4) from seal mandrel (1).

I-3) ASSEMBLY

NOTE₁: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, and orientation and tighten/torque all connections properly.

I-3.1) Install o-rings (4) in o-ring groove in seal mandrel (1).

I-3.2) Clamp seal mandrel (1) in vise.

I-3.2.1) Install o-rings (5) in o-ring grooves in bonded seals (2).

I-3.2.2) Install bonded seals (2) and seal spacer (3) onto seal mandrel (1).

CAUTION₁: Do not rip or tear o-rings during installation

I-3.3) Unclamp and remove assembled seal unit from vise.

I-4) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58140
1	1	SEAL MANDREL	L-80	58140012
2	2	BONDED SEAL	1026/NITRILE	58040520*
3	1	SEAL SPACER	DLMS60	58040550*
4	2	153 O-RING	90 DURO NITRILE	90153*
5	2	154 O-RING	90 DURO NITRILE	90154*

*Not part of ATR and VTR assemblies. Refer to ATR and VTR Seal Stack Assembly (H.4).

ASSEMBLED WEIGHT	17 LBS
------------------	--------



SEAL BORE ACCESSORIES

4.000”

Manual No:
DL-581-4000-440

Revision: **E**

Revision Date:
08/03/2023

Authored by: *B.Mathis*

Approved by: *B.Oligschlaeger*

I) SEAL UNIT ASSEMBLY (cont'd)

I-4.1) ELASTOMER TRIM OPTIONS

NOTE₃: For temperature range, refer to Elastomer Trim Temperature Guide.

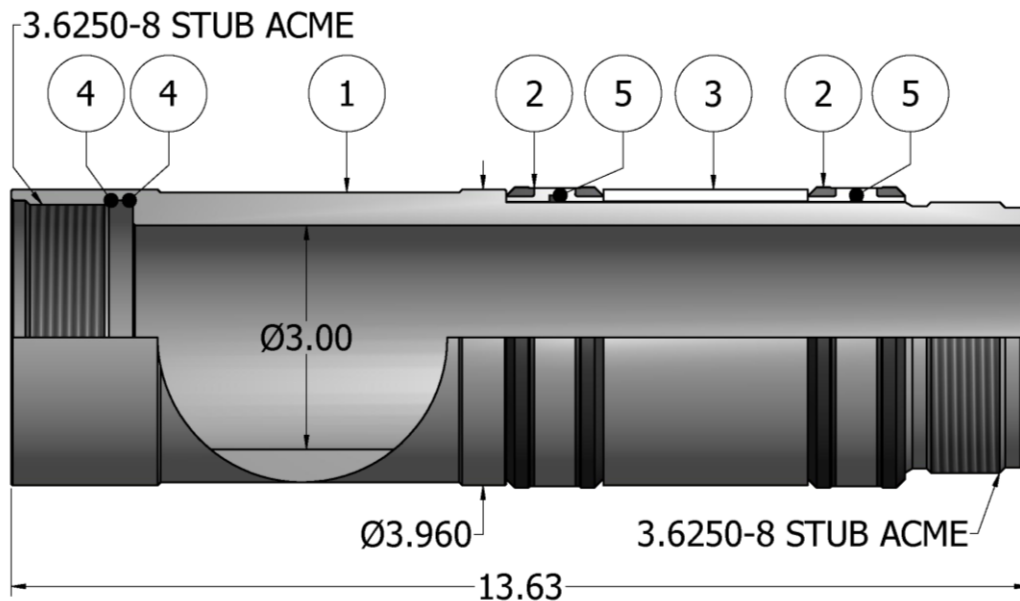
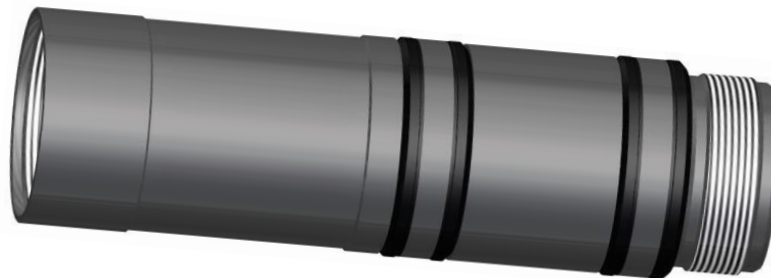
I-4.1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58140H
2	2	BONDED SEAL	1026/HSN	58040520H
4	2	153 O-RING	90 DURO HSN	90153H
5	2	154 O-RING	90 DURO HSN	90154H

I-4.1.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58140V
2	2	BONDED SEAL	1026/VITON	58040520V
4	2	153 O-RING	90 DURO VITON	90153V
5	2	154 O-RING	90 DURO VITON	90154V

I-5) TECHNICAL ILLUSTRATION





SEAL BORE ACCESSORIES

4.000”

Manual No:
DL-581-4000-440

Revision: **E**

Revision Date:
08/03/2023

Authored by: B.Mathis

Approved by: B.Oligschlaeger

J) MULE SHOE

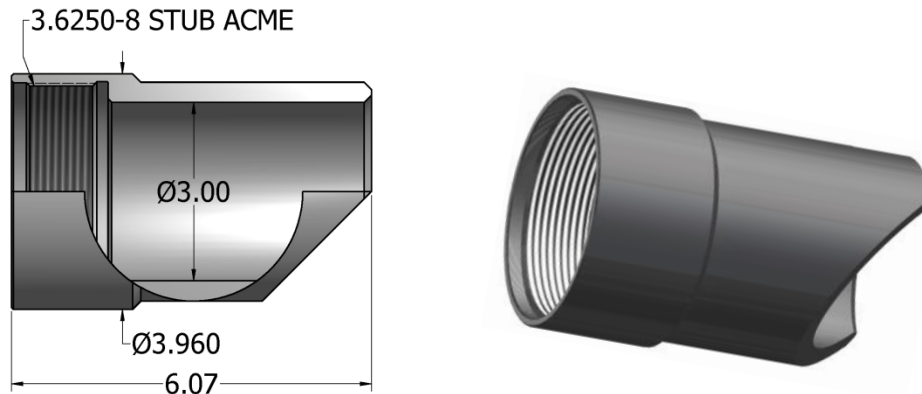
The D&L Mule Shoe is installed on the bottom of the D&L Anchor Latch, Seal Locator, or Seal Unit. The D&L Mule Shoe allows for rotation of the tubing to help guide the seals into the packer seal bore.

J-1) SPECIFICATION GUIDE

PACKER BORE SIZE (INCHES)	PART OD (INCHES)	PART BORE (INCHES)	THREAD CONNECTION	PART NUMBER
4.000	3.960	3.000	3.6250-8 STUB ACME	58440615

WEIGHT	5 LBS
--------	-------

J-2) TECHNICAL ILLUSTRATION



K) ATR AND VTR SEAL STACK OPTION ASSEMBLY

The ATR and VTR seal stack options are available for all seal bore accessories. Refer to Elastomer Trim Temperature Guide for temperature range.

K-1) ASSEMBLY

NOTE₁: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order and orientation.

K-1.1) Clamp seal bore accessory in vise. Follow assembly instructions given above for seal bore accessory for all other parts.

K-1.2) Install end spacer (S.5) onto seal bore accessory.

K-1.3) Install three (3) AFLAS/Viton rings (S.1), Teflon rings (S.2), and Ryton rings (S.3) in order onto seal bore accessory.

CAUTION₂: Rings must be installed in the proper order and orientation. Refer to Technical Illustration below.

K-1.4) Install center spacer (S.4) onto seal bore accessory.

K-1.5) Install three (3) Ryton rings (S.3), Teflon rings (S.2), and AFLAS/Viton rings (S.1) in order onto seal bore accessory.

CAUTION₂: Rings must be installed in the proper order and orientation. Refer to Technical Illustration below.

K-1.6) Install end spacer (S.5) onto seal bore accessory.

K-1.7) Unclamp seal bore accessory from vise and remove assembled tool.



SEAL BORE ACCESSORIES

4.000”

Manual No:
DL-581-4000-440

Revision: **E**

Revision Date:
08/03/2023

Authored by: B.Mathis

Approved by: B.Oligschlaeger

K) ATR AND VTR SEAL STACK OPTION ASSEMBLY (cont'd)

K-2) ATR OPTION PARTS LIST

NOTE₃: For temperature range, refer to Elastomer Trim Temperature Guide.

ITEM	QTY	DESCRIPTION	MATERIAL	PART NUMBER
S	1	4.000" ATR SEAL STACK	-	58740ATRSS
S.1	6	AFLAS RING	AFLAS	587AF400
S.2	6	TEFLON RING	TEFLON	587TF400
S.3	6	RYTON SPACER	RYTON	587RY400
S.4	1	CENTER SPACER	1026	587CS400
S.5	2	END SPACER	1026	587ES400

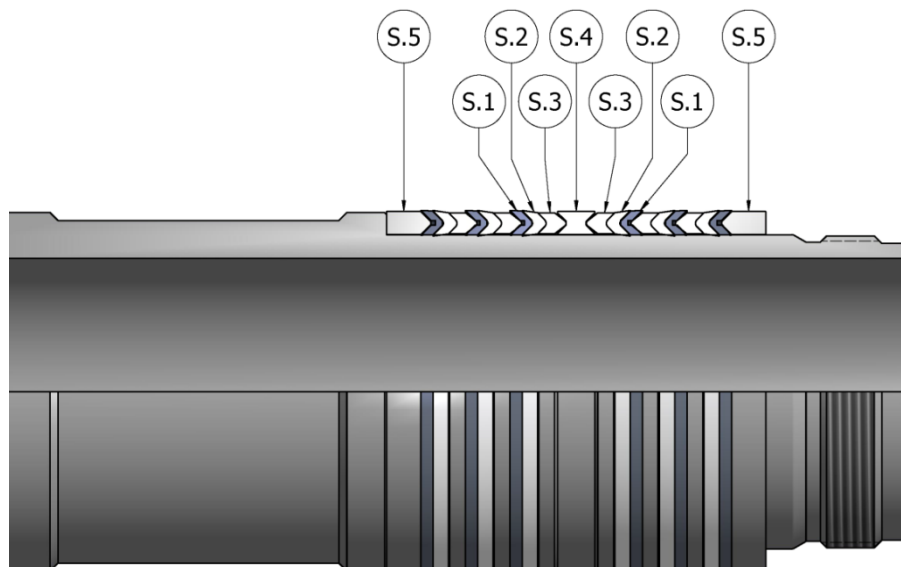
K-3) VTR OPTION SEAL STACK

NOTE₃: For temperature range, refer to Elastomer Trim Temperature Guide.

ITEM	QTY	DESCRIPTION	MATERIAL	PART NUMBER
S	1	4.000" VTR SEAL STACK	-	58740VTRSS
S.1	6	VITON RING	VITON	587VF400
S.2	6	TEFLON RING	TEFLON	587TF400
S.3	6	RYTON SPACER	RYTON	587RY400
S.4	1	CENTER SPACER	1026	587CS400
S.5	2	END SPACER	1026	587ES400

K-4) TECHNICAL ILLUSTRATION

NOTE₂: Seal Unit Assembly (P/N 58140ATR) shown. Order, orientation and quantity typical of all assemblies.





SEAL BORE ACCESSORIES

4.000”

Manual No:
DL-581-4000-440

Revision: **E**

Revision Date:
08/03/2023

Authored by: *B.Mathis*

Approved by: *B.Oligschlaeger*

L) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
08/03/2023	E	Added P/N 58340-3	J.Anderson	D.Mckeon
10/02/2020	D	Revised nitrile temp. rating, snap latch straight pull release amount; Added tensile load thru anchor latch	J.Anderson	D.Hushbeck
01/13/2016	C	Added P/N 58340, Pre-Installation Inspection Procedures, Storage Recommendations; Revised Rubber Type Temperature Ranges – Nitrile was 70° - 300°F, HSN was 70° - 325°F	J.Anderson	K.Riggs
07/28/2015	B	Added Elastomer Trim Temperature Guide, Snap Latch Assembly, HSN, Viton, ATR/VTR options	J.Anderson	T.Myerley
11/15/2012	A	New document	B.Mathis	B.Oligschlaeger